

What is Claimed is:

1. A flavonoids extract obtained from a traditional Chinese medicine Typhae Pollen, comprising flavonoids constituents including a kaempferol, a kaempferol-3-O-neohesperidoside, a kaempferol-3-O-(2^G-α-L-rham)-rutinoside, a kaempferol-3-rutino-7-rhamnoside, a quercetin, a quercetin-3-O-neohesperidoside, a quercetin-3-O-(2^G-α-L-rham)-rutinoside, a quercetin-3-rutino-7-rhamnoside, an isorhamnetin, an isorhamnetin-3-O-neohesperidoside, an isorhamnetin-3-O-(2^G-α-L-rham)-rutinoside, and an isorhamnetin-3-rutino-7-rhamnoside.
5
2. The flavonoids extract, as recited in claim 1, wherein said Typhae Pollen
10 having a plant body is a common name of a family Typhaceae and is at least one of the portions of said plant body selecting from a whole plant body, a pollen, a spica, a stem, a leave, a fruit, a root and a rootstalk.
3. The flavonoids extract, as recited in claim 1, wherein said Typhae Pollen
15 having a plant body is a common name of a family Typhaceae and is originated from a mature pollen of the plant body.
4. The flavonoids extract, as recited in claim 1, wherein said Typhae Pollen is capable of having the forms selecting from the group consisting of a crude form which is the crude Typhae Pollen and a non-crude form which is treated, wherein said non-crude form is capable of selecting from the group consisting of fried Typhae Pollen, brunt
20 Typhae Pollen, alcoholic Typhae Pollen and vinegar Typhae Pollen.
5. The flavonoids extract, as recited in claim 1, wherein a total percentage composition of said plurality of constituents is in the range between 5% and 100% by weight.
6. The flavonoids extract, as recited in claim 5, wherein a percentage composition
25 of said isorhamnetin-3-O-(2^G-α-L-rham)-rutinoside and said isorhamnetin-3-O-neohesperidoside is a range of 20% and 100% by weight.
7. The flavonoids extract, as recited in claim 1, wherein said flavonoids constituents are in a degraded form produced by a process of degradation carried out

under a predetermined condition selecting from the group of heating condition, acidic condition, alkaline condition and enzyme condition.

8. The flavonoids extract, as recited in claim 1, wherein said flavonoids constituents are in a metal derivative form produced by a reaction with a predetermined metal salt selecting from the group consisting of a sodium salt and a potassium salt.

9. The flavonoids extract, as recited in claim 1, wherein said flavonoids constituents are in a metal complex form produced by a reaction with a predetermined metal ion selecting from the group consisting of zinc ion, magnesium ion, chromium ion, iron ion, aluminum ion, copper ion, calcium ion, cobalt ion, barium ion, strontium ion, and zirconium ion.

10. The flavonoids extract, as recited in claim 1, wherein said flavonoids extract is produced from a predetermined process of extraction selecting from the group consisting of a solvent extraction process; a macroporous resin adsorption process; a lead salt precipitation process; a supercritical CO₂ extraction process; a column chromatography process and a liquid-liquid reflux extraction process.

11. The flavonoids extract, as recited in claim 10, wherein said solvent extraction process comprises the steps of:

- (a) providing a predetermined starting extract materials in water;
- (b) removing oil soluble impurities by a low polarity agent selected from the group consisting of ether, alkane, and ester solvent; and
- (c) obtaining a resulting flavonoids extract by applying at least one predetermined polar solvent selecting from the group consisting of butanol, isopropanol and chloroform.

12. The flavonoids extract, as recited in claim 10, wherein said macroporous resin adsorption process comprises the steps of:

- (a) providing a predetermined resin selected from the group consisting of non-polar resin, low polarity resin, medium polarity resin, weak basicity resin and weak acidity resin; and

(b) using a predetermined extracting agent selected from the group consisting of water, ethanol in water, methanol in water, and propanone in water for extracting a resulting flavonoids extract.

5 13. The flavonoids extract, as recited in claim 10, wherein said lead salt precipitation process comprises the steps of

(a) providing a predetermined lead salt agent selecting from the group consisting of lead acetate and basic lead acetate; and

(b) using a predetermined demineralizing agent selecting from the group consisting of H₂S, phosphate and sulfate for extracting a resulting flavonoids extract.

10 14. The flavonoids extract, as recited in claim 10, wherein said column chromatography process comprises the steps of

(a) providing predetermined starting extract materials;

15 (b) providing a stationary bed having materials selected from the group consisting of silica gel, polyamide, aluminum oxide, polysaccharide, C-8, C-18, active charcoal, and cellulase; and

(c) using a mixing eluting agent selecting from at least two of the group consisting of water, methanol, ethanol and propanone, chloroform and ethyl acetate to obtain a resulting flavonoids extract.

20 15. The flavonoids extract, as recited in claim 14, wherein said starting extract materials is a preliminary purifying substance obtained from a purification process, wherein said purification process comprises a step of purifying a flavonoids extract prepared by a predetermined preliminary extraction process selecting from the group consisting of solvent extraction process, macroporous resin adsorption process, lead salt precipitation and supercritical CO₂ extraction process.

25 16. The flavonoids extract, as recited in claim 10, wherein said liquid-liquid reflux extraction process comprises the steps of

(a) providing a predetermined starting extract materials in water;

(b) removing oil soluble impurities by a low polarity agent selected from the group consisting of ether, alkane, and ester solvent; and

5 (c) obtaining a resulting flavonoids extract by applying at least one predetermined polar solvent selected from the group consisting of butanol, isopropanol and chloroform.

17. The flavonoids extract, as recited in claim 16, wherein said starting extract materials is a preliminary purifying substance obtained from a purification process, wherein said purification process comprises a step of purifying a flavonoids extract prepared by a predetermined preliminary extraction process selecting from the group
10 consisting of solvent extraction process, macroporous resin adsorption process, lead salt precipitation and supercritical CO₂ extraction process.

18. A method of preparing a flavonoids extract including a kaempferol, a kaempferol-3-O-neohesperidoside, a kaempferol-3-O-(2^G-α-L-rham)-rutinoside, a kaempferol-3-rutino-7-rhamnoside, a quercetin; a quercetin-3-O-neohesperidoside, a
15 quercetin-3-O-(2^G-α-L-rham)-rutinoside, a quercetin-3-rutino-7-rhamnoside, an isorhamnetin, an isorhamnetin-3-O-neohesperidoside, an isorhamnetin-3-O-(2^G-α-L-rham)-rutinoside, and an isorhamnetin-3-rutino-7-rhamnoside, wherein said method comprises an extraction process, a filtration process, a condensation process, and a drying process.

20 19. The method, as recited in claim 18, wherein said extraction process comprising the steps of:

providing a predetermined solvent selecting from the group consisting of water, acetate solvent, ketone solvent, and ester solvent, wherein said predetermined solvent is capable of reacting with a predetermined substance selecting from the group consisting of
25 acid and alkali to form an acidic solvent and an alkaline solvent respectively such that said acidic solvent and said alkaline solvent are capable of used to substitute said predetermined solvent; and

obtaining said flavonoids extract by a method of solvent extraction selecting from the group consisting of refluxation, diffusion, ultraextraction, microextraction and pressure extraction.

20. The method, as recited in claim 19, wherein said predetermined solvent is
5 70% ethanol.

21. The method, as recited in claim 18, wherein said filtration process is selected from the process consisting of centrifugation, extract filtration, pressure filtration, ultrafiltration.

22. The method, as recited in claim 21, wherein said filtration process comprises a
10 step of providing a fining agent selecting from the group consisting of gelatin, active charcoal, infusorial earth, china clay; resins, polyethylene glycol, polyethene triol, chitsoan, and natural fining agent.

23. The method, as recited in claim 18, wherein said condensation process is a process selecting from the group consisting of film evaporation, rotatory evaporation and
15 heating under a normal pressure condition.

24. The method, as recited in claim 18, wherein said drying process is a process selected from the group consisting of vacuum drying, spray drying and freeze drying.

25. A method for treating patients with blood diseases comprising administering said flavonoides extract according to claim 1 to patients with said blood diseases.

20 26. The method, as recited in claim 25, wherein said blood diseases are diseases of blood vessel in brain and heart

27. The method, as recited in claim 25, wherein said blood diseases of said patients are poor blood circulation induced diseases selected from the group consisting of chest pain, stomachache, physical injuries, puerperium pain and menstruation.

25 28. The method, as recited in claim 25, wherein said blood diseases are diseases involving bleeding.

29. A method for preventing users with blood diseases comprising administering said flavonoides extract according to claim 1 to said users to prevent said users to have said blood diseases.

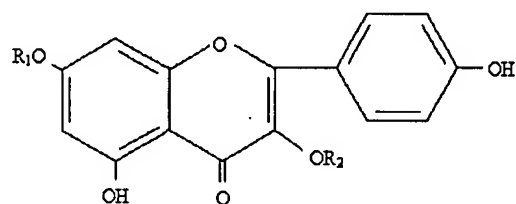
30. The method, as recited in claim 29, wherein said blood diseases are diseases of blood vessel in brain and heart

31. The method, as recited in claim 29, wherein said blood diseases of said patients are poor blood circulation induced diseases selected from the group consisting of chest pain, stomachache, physical injuries, puerperium pain and menstruation.

32. The method, as recited in claim 29, wherein said blood diseases are diseases involving bleeding.

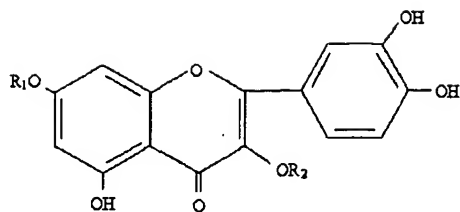
33. An extract of Typhae Pollen wherein one of said extract components is flavonol glycosides and said active components of said flavonol glycosides are a combination of the group selected from structural formulae (A), (B) and (C), wherein said structural formula (A) consists of chemical components (1), (2), (3) and (4); said structural formula (B) consists of chemical components (5), (6), (7) and (8); and said structural formula (C) consists of chemical components (9), (10), (11), (12) and (13);

wherein said structural formula (A) is:



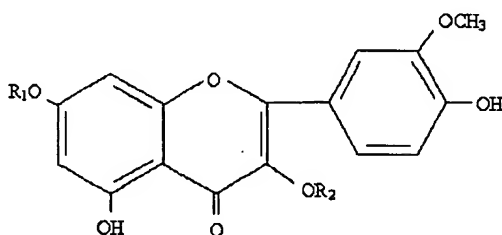
where said chemical component (1) is $R_1 = R_2 = H$, said chemical component (2) is $R_1 = H$, $R_2 = \text{neohesperidoside}$, said chemical component (3) is $R_1 = H$, $R_2 = (2^G\text{-rham})\text{-rutinoside}$, and said chemical component (4) is $R_1 = \text{rhamnoside}$, $R_2 = \text{rutinoside}$;

wherein said structural formula (B) is:



where said chemical component (5) is $R_1 = R_2 = H$, said chemical component (6) is $R_1 = H$, $R_2 =$ neohesperidoside, said chemical component (7) is $R_1 = H$, $R_2 = (2^G\text{-rham})\text{-rutinoside}$, and said chemical component (8) is $R_1 =$ rhamnoside, $R_2 =$ rutinoside;

5 wherein said structural formula (C) is:



where said chemical component (9) is $R_1 = R_2 = H$, said chemical component (10) is $R_1 = H$, $R_2 =$ neohesperidoside, said chemical component (11) is $R_1 = R_2 =$ rutinoside, said chemical component (12) is $R_1 = H$, $R_2 = (2^G\text{-rham})\text{-rutinoside}$, and said
10 chemical component (13) is $R_1 =$ rhamnoside, $R_2 =$ rutinoside.

34. The extract of Typhae Pollen, as recited in claim 33, wherein said chemical components (1), (2), (3), (4), (5), (6), (7), (8), (9), (10), (11), (12) and (13) are kaempferol, kaempferol-3-O-neohesperidoside, kaempferol-3-O-($2^G\text{-}\alpha\text{-L-rham}$)-rutinoside, kaempferol-3-rutino-7-rhamnoside, quercetin, quercetin-3-O-neohesperidoside, quercetin-3-O-($2^G\text{-}\alpha\text{-L-rham}$)-rutinoside, quercetin-3-rutino-7-rhamnoside, isorhamnetin, isorhamnetin-3-O-neohesperidoside, isorhamnetin-3-O-($2^G\text{-}\alpha\text{-L-rham}$)-rutinoside and isorhamnetin-3-rutino-7-rhamnoside, respectively.
15